

REMARKS

The Office Action dated January 11, 2008 has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 1-8, 12, 14-17, and 19-20 have been amended to more particularly point out and distinctly claim the subject matter of the invention. Claims 10 and 19 have been cancelled without prejudice or disclaimer. New claim 21 has been added. No new matter has been added. Therefore, claims 1-9, 11-18, and 20-21 are currently pending in the application and are respectfully submitted for consideration.

The Office Action objected to claim 19 because of minor informalities. Specifically, the Office Action objected to claim 19 because it uses the word "Channelchannel." Claim 19 has been amended to recite "Channel," instead of "Channelchannel," and Applicants respectfully submit that said amendment moots the objection. Accordingly, Applicants respectfully request that the objection be withdrawn.

The Office Action rejected claims 1-4, 6-13, and 15-20 under 35 U.S.C. §102(e) as allegedly anticipated by Hwang, *et al.* (U.S. Patent No. 7,047,473) ("Hwang"). The Office alleged that Hwang discloses or suggests every claim feature recited in claims 1-4, 6-13, and 15-20. Applicants respectfully submit that said claims recite allowable subject matter for at least the following reasons.

Claim 1, upon which claims 2-9 and 11 are dependent, recites a method of controlling link adaptation and packet scheduling in a High Speed Downlink Packet

Access radio system. The method further includes receiving feedback information from user equipment by a base station over a control channel, and calculating a quality estimate related to the feedback information by the base station. The method further includes executing link adaptation and packet scheduling based on the calculated quality estimate by the base station, and measuring a second piece of feedback information from associated Dedicated Physical Channel. The method further includes weighting a use of a channel quality indicator compared to the second piece of feedback information from the associated Dedicated Physical Channel.

Claim 12, upon which claims 13-18 and 20 are dependent, recites a High Speed Downlink Packet Access base station communicating over a control channel with one or more user equipment units. The base station includes a receiver configured to receive feedback information from the user equipment, and a calculator configured to calculate a quality estimate related to the feedback information. The base station further includes an executor configured to execute link adaptation and packet scheduling based on the calculated quality estimate, and a measurer configured to measure a second piece of feedback information from associated Dedicated Physical Channel. The base station further includes a weighing unit configured to weigh a use of a channel quality indicator compared to the second piece of feedback information from the associated Dedicated Physical Channel.

Claim 21 recites a High Speed Downlink Packet Access base station communicating over a control channel with one or more user equipment units. The base

station includes receiving means for receiving feedback information the user equipment, and calculating means for calculating a quality estimate related to the feedback information. The base station further includes executing means for executing link adaptation and packet scheduling based on the calculated quality estimate, and measuring means for measuring a second piece of feedback information from associated Dedicated Physical Channel. The base station further includes weighting means for weighting a use of a channel quality indicator compared to the second piece of feedback information from the associated Dedicated Physical Channel.

Thus, according to embodiments of the invention, the CQI estimate accuracy is improved. Additionally, the link adaptation delay is reduced and the throughput performance is improved because the packet scheduling and link adaptation can decide to accept a quality value even before all possible repetitions have been received.

As will be discussed below, Hwang fails to disclose or suggest all of the elements of the claims, and therefore fails to provide the advantages and features discussed above.

Hwang generally discloses a method for controlling the transmission of data in a radio communication system. The system transmits response signals from a receiver which includes information that reflects received signal quality, as well as information indicating whether an error has occurred in the data transmission. (see Hwang at Abstract).

Applicants respectfully submit that Hwang fails to disclose, teach, or suggest, all of the elements of the present claims. For example, Hwang fails to disclose, teach, or

suggest, at least, “measuring a second piece of feedback information from associated Dedicated Physical Channel,” and “weighting a use of a channel quality indicator compared to the second piece of feedback information from the associated Dedicated Physical Channel,” as recited in independent claim 1, and similarly recited in independent claims 12 and 21.

The Office Action took the position that the operation of the HS-SCCH channel can be interpreted as dedicated when performing HARQ signaling. Thus, the Office Action took the position that Hwang discloses measuring a second piece of information from an associated Dedicated Physical Channel. (see Office Action at page 6, section 15). Applicants respectfully disagree, and submit that Hwang fails to disclose, or suggest, measuring a second piece of information from an associated Dedicated Physical Channel.

The HS-SCCH channel disclosed in Hwang is a high-speed shared control channel. It is a downlink physical channel used to carry signaling related to HS-DSCH transmission, and is introduced by the HSDPA standard. The signaling includes information such as a transport channel set size, a modulation method, a coding rate, and a multicode number. (see Hwang at col. 3, lines 35-39).

Hwang fails to disclose, or suggest, that the HS-DSCH control information is measured. Instead, Hwang merely discloses that the information is transmitted through the HS-SCCH of the physical channel, and subsequently divided into transport format and resource related information, and HARQ related information. Furthermore, one of

ordinary skill in the art would readily understand that the type of signaling information disclosed in Hwang is not typically measured, but instead is received and decoded. Finally, one of ordinary skill in the art would readily understand that the type of signaling information disclosed in Hwang is required for establishing a connection between a user terminal and network. Thus, one cannot measure a channel before a connection is established (i.e. before a channel is created).

The Office Action further took the position that the control information transferred with a NAK can be interpreted as a second piece of feedback. Thus, the Office Action further took the position that Hwang discloses weighting a use of channel quality indicator compared to the second piece of feedback information from the associated Dedicated Physical Channel. (see Office Action at pages 6-7, section 15). Applicants respectfully disagree, and submit that the Hwang fails to disclose, or suggest, weighting a use of channel quality indicator compared to the second piece of feedback information from the associated Dedicated Physical Channel.

Hwang discloses that if the reception quality is greater than the goal quality, the NAK signal is transmitted, but if the reception quality is less than the goal quality, the NAK with a control signal is transmitted. For example, a NAK with control signal including 01010101 and 00100100 is transmitted, where 01010101 is designated as information about the increase in the transmission power, and 00100100 is designated as the increase in the multicode number. (see Hwang at col. 11, line 47 – col. 12, line 8).

As described above, one of ordinary skill in the art would readily understand the above-mentioned type of control information is not measured from a channel, but received and decoded. This type of signaling information is not sent for measuring purposes, but conveying necessary information for establishing a radio connection. Hwang further discloses code words comprising the control information: 000 for retransmission delay of 3 second, 001 for retransmission delay of 10 seconds, 010 for increase of the transmission power, 011 for decrease of the transmission power, 100 for increase in the multicode number, 101 for decrease in the multicode number, 01010101 for increase in the transmission power, and 00100100 for increase in the multicode number. (see Hwang at col. 9, line 51 – col. 10, line 34; col. 11, line 35 – col. 12, line 33). There is no suggestion of any measurable quantities in these code words. Furthermore, Hwang is silent as to measurements in relation to the control information. Finally, Hwang is silent as to weighting the use of the channel equality indicator compared to the second piece of feedback information.

Therefore, for at least the reasons discussed above, Hwang fails to disclose, teach, or suggest, all of the elements of independent claims. For the reasons stated above, Applicants respectfully request that this rejection be withdrawn.

Claims 2-9 and 11 depend upon independent claim 1. Claims 13-18 and 20 depend upon independent claim 12. Thus, Applicants respectfully submit that claims 2-9, 11, 13-18, and 20 should be allowed for at least their dependence upon independent claims 1 and 12, and for the specific elements recited therein.

The Office Action rejected claims 5 and 14 under 35 U.S.C. §103(a) as being allegedly unpatentable as obvious over Hwang. The Office Action took the position that Hwang discloses all the elements of the claims with the exception of “averaging the received HARQ bits. The Office Action then took Official Notice, alleging that “averaging quality and power control information is well known to those in the art.” (see Office Action at page 8, section 19). Applicants respectfully submit that said claims recite allowable subject matter for at least the following reasons.

The description of Hwang, as described above, is incorporated herein.

Claims 5 and 14 depend upon independent claims 1 and 12, respectively. As discussed above, Hwang does not disclose, teach, or suggest all of the elements of independent claims 1 and 12. Furthermore, even in light of the Office Action’s alleged Official Notice, Hwang also does not disclose, teach, or suggest, at least, “measuring a second piece of feedback information from associated Dedicated Physical Channel,” and “weighting a use of a channel quality indicator compared to the second piece of feedback information from the associated Dedicated Physical Channel,” as recited in independent claim 1, and similarly recited in independent claims 12. Additionally, claims 5 and 14 should be allowed for at least their dependence upon independent claims 1 and 12, and for the specific elements recited therein.

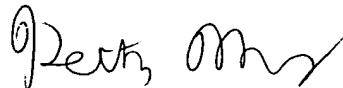
For at least the reasons discussed above, Applicants respectfully submit that the cited prior art references fails to disclose or suggest all of the elements of the claimed invention. These distinctions are more than sufficient to render the claimed invention

unanticipated and unobvious. It is therefore respectfully requested that all of claims 1-9, 11-18, and 20-21 be allowed, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned representative at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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Enclosures: Petition for Extension of Time
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